NOTES FROM PACIFIC COAST OBSERVATORIES

THE SPECTRUM OF COMET *b* 1919 (BRORSEN-METCALF)

Two spectrograms were recently secured here of Comet *b*, 1919. The first plate, exposed on the morning of October 17th, was rather weak, due to a hazy sky, and a second exposure was made on the following morning under a better sky. The second plate was measured and the results are tabulated below. In a parallel column will be found the main details in the spectrum of Comet *b* 1914 (Zlatinsky), observed with the same instrument. The spectrum of the early comet is reproduced in *Lowell Observatory Bulletin* No. 74, to which the reader may wish to refer, since the spectral resemblance is fairly close, altho the emissions from near λ4000 to λ4100 are weaker in the present object. The continuous spectrum is faint in the Brorsen-Metcalf comet. This comet passed perihelion October 16th, and its distance from the Earth was about nine-tenths the astronomical unit and increasing.

Comet *b* 1919 Brorsen-Metcalf	Comet *b* 1914 Zlatinsky	Remarks
5163	5164	3rd carbon band, partially resolved
5126	5128	3rd carbon band, poorly resolved
4735.2	4735.3	4th carbon band, strong, clear
4714.9	4714.2	4th carbon band, strong, clear
4697.1	4695.7	4th carbon band, strong, clear
4677	4679	4th carbon band, blend
4544	4543	Region of 1st cyanogen band, weak
4371.1	4370.5	" " weak, but distinct
4364.1	4363.9	" " fairly strong, distinct
4313.5	4313.3	" " very sharp
4214.6	4214.9	1st edge, 2nd cyanogen band, strong
4198±	4195.9	" " diffuse
4073.8	4073.7	Unidentified, weak
4066.6	4066.5	Unidentified, weak
4050.6	4051.5	Unidentified, weak
4042.1	4042.4	Unidentified, weak
4020.3	4020.2	Unidentified, weak
4016.1	4014.4	Unidentified, weak
3881.1	3881.1	1st edge, 3rd cyanogen band, very strong
3868.2	3868.3	" " wide blend

The linear scale of these spectra, 7 mm. from λ5165 to λ3883, and the fluting nature of the bands are against accurate wavelength determinations. The agreement between the results for the two comets is as good as might be expected and the occasional difference found should not be interpreted as implying necessarily real difference in the bands.

I am indebted to Mr. O. H. Truman for reducing the measures and for computing the radial velocity corrections to the wavelengths.

Lowell Observatory, V. M. SLIPHER.
Flagstaff, Arizona.

STATIONARY SODIUM LINES IN SPECTROSCOPIC BINARIES[1]

From the nature of a spectroscopic binary it seems reasonable to expect that the velocities given by the separate star lines on a single plate should be in mutual agreement. This has been found to be the case normally, the displacements of the star lines on any one plate corresponding to the same velocity. However, the H and K lines of calcium occasionally offer an exception to this usual behavior. In a number of early type spectroscopic binaries these lines remain practically stationary thruout a periodic variation of large amplitude in the other star lines, and moreover, they appear sharp and narrow in contrast to the broad and hazy lines characteristic of this class of spectra.

A recent investigation at the Lick Observatory has shown a similar peculiarity in the D_1 and D_2 lines of sodium. Two stars, *β Scorpii* and *δ Orionis*, were studied, these having been selected as representative of the class of variable velocity stars showing stationary H and K lines. The spectrograms which form the basis of this work were taken in the visual region with a three-prism spectrograph attached to the thirty-six-inch refractor. In this region of the spectrum but three oscillating lines were measurable and, due to their poor definition, the velocities determined from these are subject to large uncertainty. The D_1 and D_2 lines of sodium are quite sharp and better suited for exact measurement, D_2 being uniformly better than D_1.

The results of the investigation are summarized below.

1. The D lines of sodium appear sharp and narrow on all the spectrograms, resembling H and K in this particular.

2. Within the limits of observational error these lines remain stationary thruout the period. A maximum departure of 21 km. from the mean velocity can be attributed to accidental error, since the character of the lines on some of the plates makes their measurement quite inaccurate and since in this region the dispersion is small.

[1]A detailed account of this investigation is given in *Lick Obs. Bull.*, **326**.